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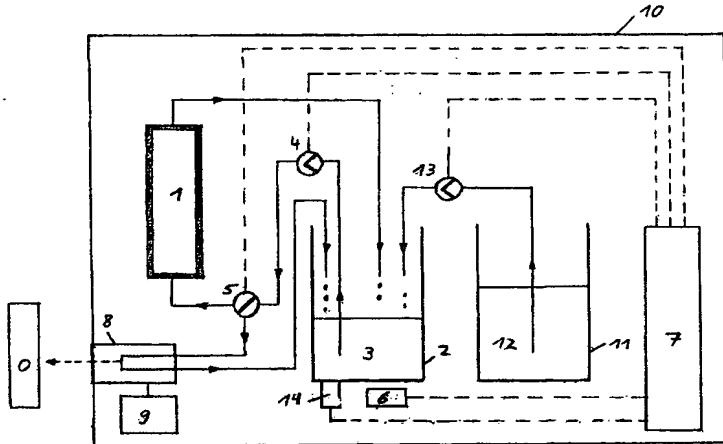
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[Continued on next page]

(54) Title: METHOD, DEVICE AND SYSTEM FOR THE TEMPORARY MARKING OF OBJECTS



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(57) Abstract: The invention concerns a method, a device and a system for applying a detectable temporary mark of predefined life time of minutes to hours onto an object (O). The invention also concerns a coating composition comprising a short-lived radioactive isotope and the use of a short-lived radioactive isotope as a temporary marking. The temporary mark is applied to the object (O) by the means of a coating composition (3) comprising a low level of a short-lived radionuclide, generated *in situ* from a longer-lived precursor nucleus. The marking device comprises a radionuclide generator (1), a reservoir (2) for the *in situ* preparing the radioactively marked printing ink, and an ink-jet or alike printing or spraying head (8), preferably of the dropon-demand type. The marking is preferably detected and identified by a gamma-radiation counter. The invention claims also a system for the temporary marking of an object (O) with a radioactive isotope of predefined life time of minutes to hours, in view of performing an operation on the marked object (O) at a later point in time.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/10614

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B42D15/00 G09F3/00 C09D11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 B42D G09F C09D G21H G21G G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 010 109 A (AKERMAN KAROL ET AL) 1 March 1977 (1977-03-01) column 1-4; figure 1 ---	1,2,8, 15,16 9-14
Y	US 6 086 942 A (RUSSELL JR JOHN L ET AL) 11 July 2000 (2000-07-11) column 1, line 1-21 column 2, line 63-67 column 3, line 35 -column 4, line 30 column 5, line 56-62 column 9; figures 2,3 ---	9-14
A	US 4 020 351 A (GEMMILL SR WAYNE JOSEPH ET AL) 26 April 1977 (1977-04-26) column 1, line 11-33 column 2, line 15-43; figures 1,2 ---	1-6,8
A	US 4 020 351 A (GEMMILL SR WAYNE JOSEPH ET AL) 26 April 1977 (1977-04-26) column 1, line 11-33 column 2, line 15-43; figures 1,2 ---	1,3,4, 9-11,15
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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- "E" earlier document but published on or after the International filing date
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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/076831 A1 (AKIMOTO TAIZO) 20 June 2002 (2002-06-20) paragraphs [0014]-[0022] paragraph [0058] paragraph [0066] paragraph [0071] column 0072; figures 1-3,7 ---	1-8,15, 16
A	US 2002/185613 A1 (KALAS DAN ET AL) 12 December 2002 (2002-12-12) paragraphs [0013]-[0019] paragraphs [0024],[0025]; figure 2 ---	1,5-9, 12-16
A	GB 1 386 915 A (ID KORT AB) 12 March 1975 (1975-03-12) the whole document ---	1-8
A	US 2 773 196 A (HALL LEONARD I) 4 December 1956 (1956-12-04) the whole document ---	1,5,7,8
A	WO 02/00440 A (AUTHENTIS LTD ;ZIDON AHARON (IL)) 3 January 2002 (2002-01-03) cited in the application page 2, line 19-26 page 5, line 16-26 page 6, line 23-27 page 7, line 3-8; figures 3-5 page 10 page 14, line 20 -page 16, line 2; figures 1-3 -----	1,9, 14-16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/10614

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

As a result of the prior review under R. 40.2(e) PCT,
part of the additional fees are to be refunded.

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8, 15, 16

The use of a short-lived radioactive isotope, a device and a method for temporary marking of an object by applying a coating composition to the object, the coating composition comprising the short-lived isotope which is generated in-situ from a longer-lived precursor isotope.

2. Claims: 9-14

A device and system for temporary marking of an object comprising a short-lived radionuclide generator, a first reservoir of a printing liquid, a splitting valve, a radiation monitor, a control unit and a printing head.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/03/10614

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 4010109	A	01-03-1977	NONE		
US 6086942	A	11-07-2000	AU BR CA CN EP WO JP US	3624799 A 9911202 A 2331421 A1 1303513 T 1082729 A1 9962074 A1 2002517006 T 6461433 B1	13-12-1999 06-02-2001 02-12-1999 11-07-2001 14-03-2001 02-12-1999 11-06-2002 08-10-2002
US 4020351	A	26-04-1977	AU BE BR DD DE DK FR JP NL NO NZ SE	1410876 A 842982 A1 7603834 A 125935 A5 2626812 A1 268376 A 2315150 A1 52001300 A 7606465 A 762067 A 181163 A 7606786 A	24-11-1977 15-12-1976 05-04-1977 01-06-1977 23-12-1976 17-12-1976 14-01-1977 07-01-1977 20-12-1976 17-12-1976 19-06-1979 17-12-1976
US 2002076831	A1	20-06-2002	JP JP	2001183370 A 2001183379 A	06-07-2001 06-07-2001
US 2002185613	A1	12-12-2002	WO	02101759 A1	19-12-2002
GB 1386915	A	12-03-1975	SE DE FR US	363180 B 2327332 A1 2190300 A5 3959630 A	07-01-1974 13-12-1973 25-01-1974 25-05-1976
US 2773196	A	04-12-1956	NONE		
WO 0200440	A	03-01-2002	US AU WO	6616051 B1 6779801 A 0200440 A2	09-09-2003 08-01-2002 03-01-2002